

2015

Eelgrass Habitat in Casco Bay: Past, Present, and Future? (2015 State of the Bay Presentation)

Hillary Neckles
US Geological Survey

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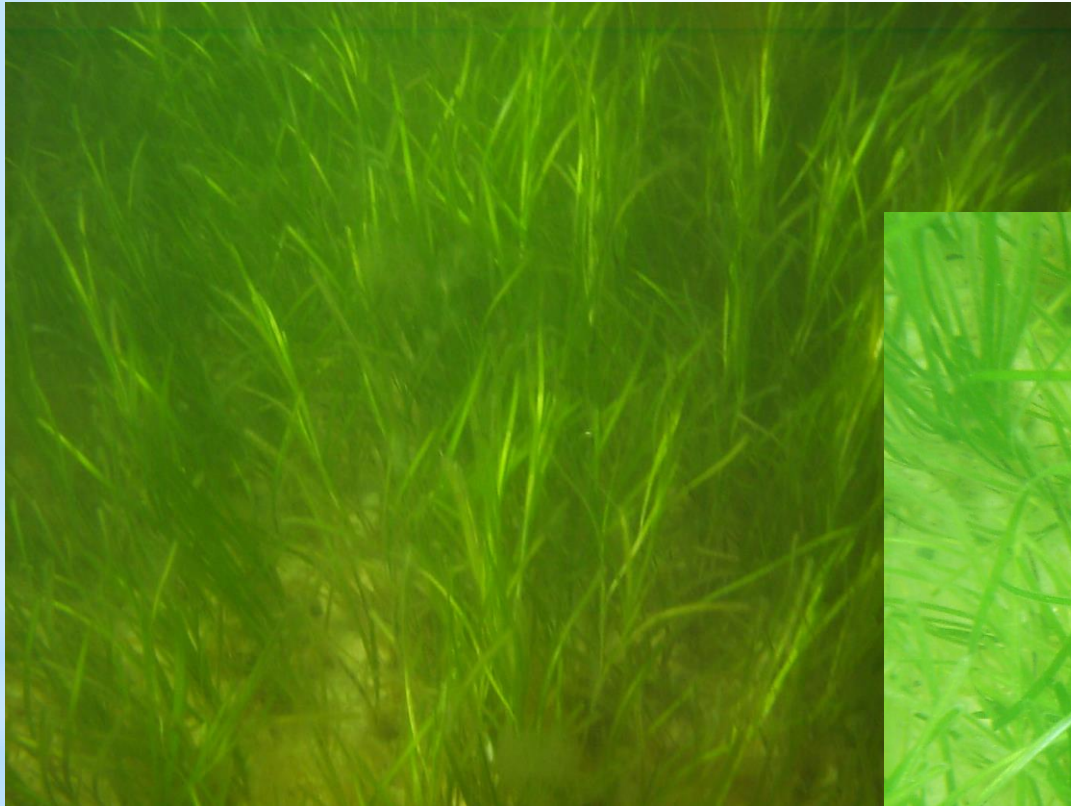
Eelgrass Habitat in Casco Bay: *Past, Present, and...* *Future?*



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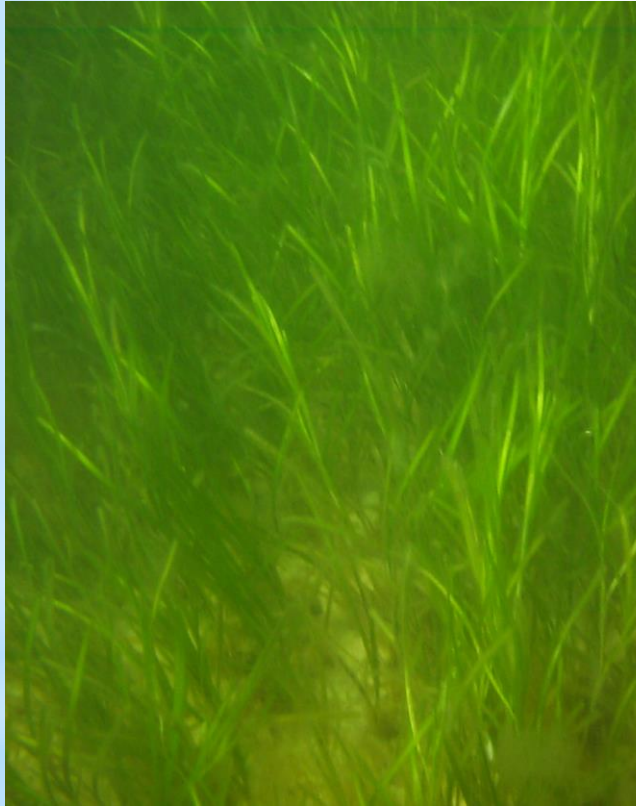
Eelgrass: *Zostera marina*

* marine flowering plant *

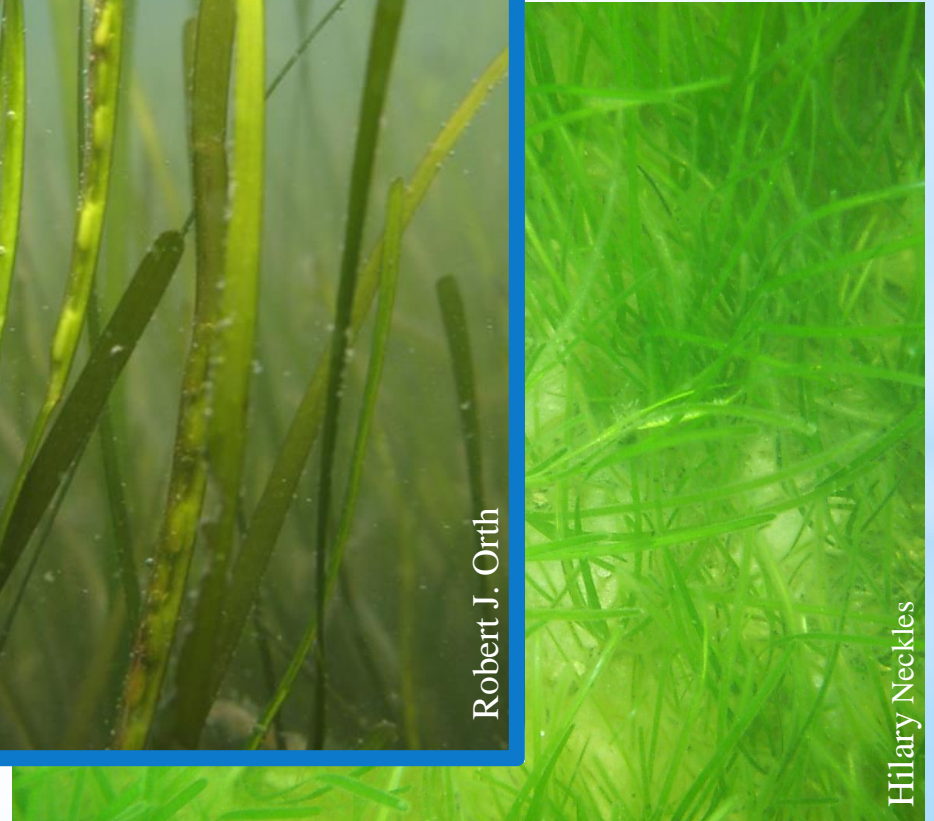


Eelgrass: *Zostera marina*

* marine flowering plant *



Robert J. Orth



Hilary Neckles





Eelgrass beds are among the most productive plant communities on the planet!



Hilary Neckles

Critical Habitat: Fin- and Shellfish

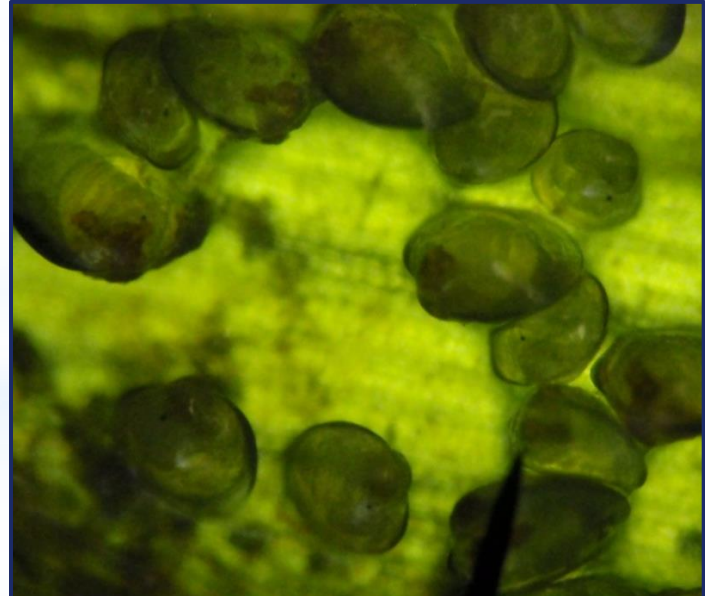
Minnow (*Urophycis regius*)



Grubby (*Myoxocephalus aeneus*)



Winter flounder (*Pseudopleuronectes americanus*)



Blue mussels (*Mytilus edulis*)

Bird Habitat

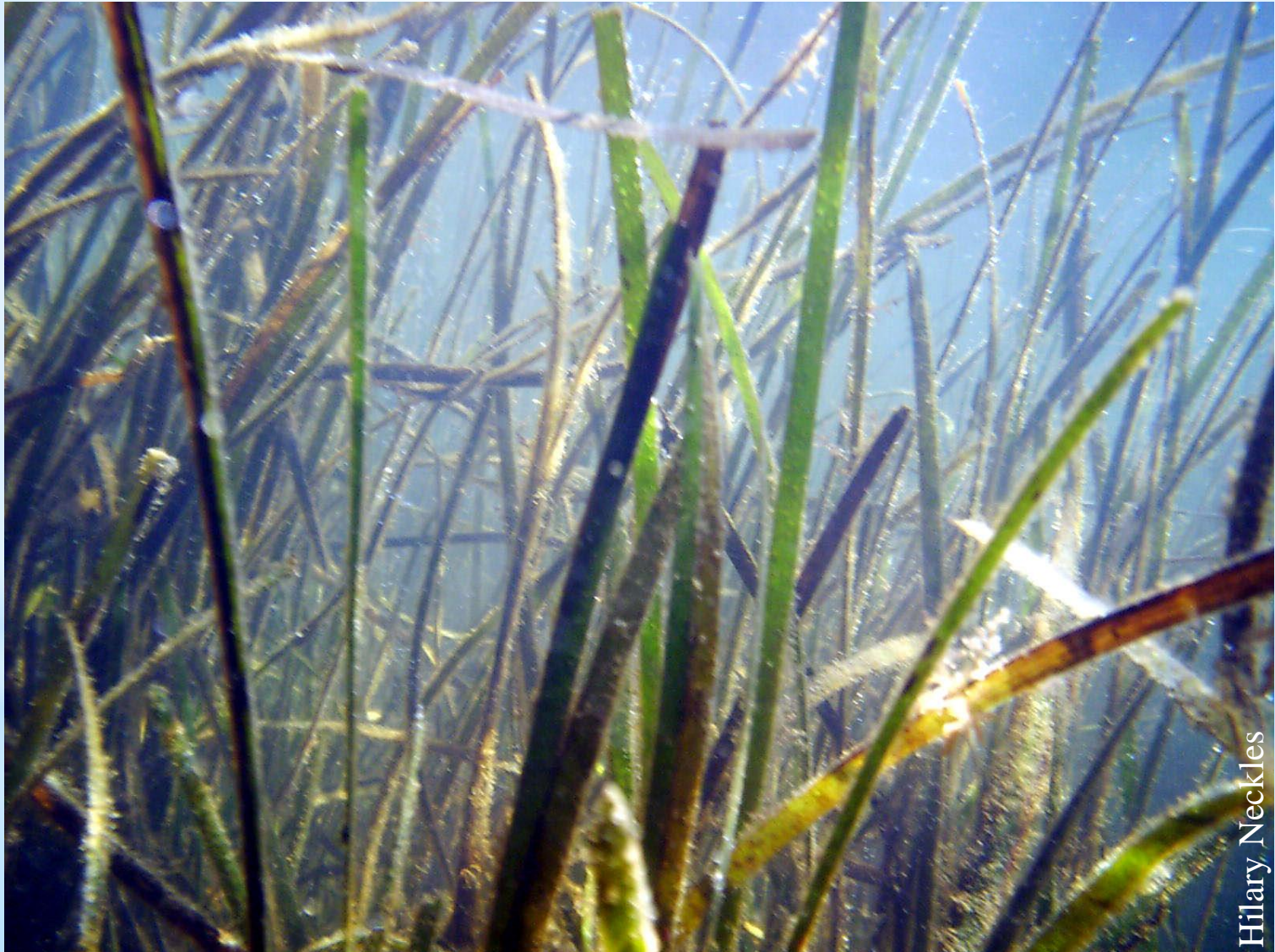


Eelgrass beds absorb nutrients, dampen wave energy, slow currents, and bind sediments

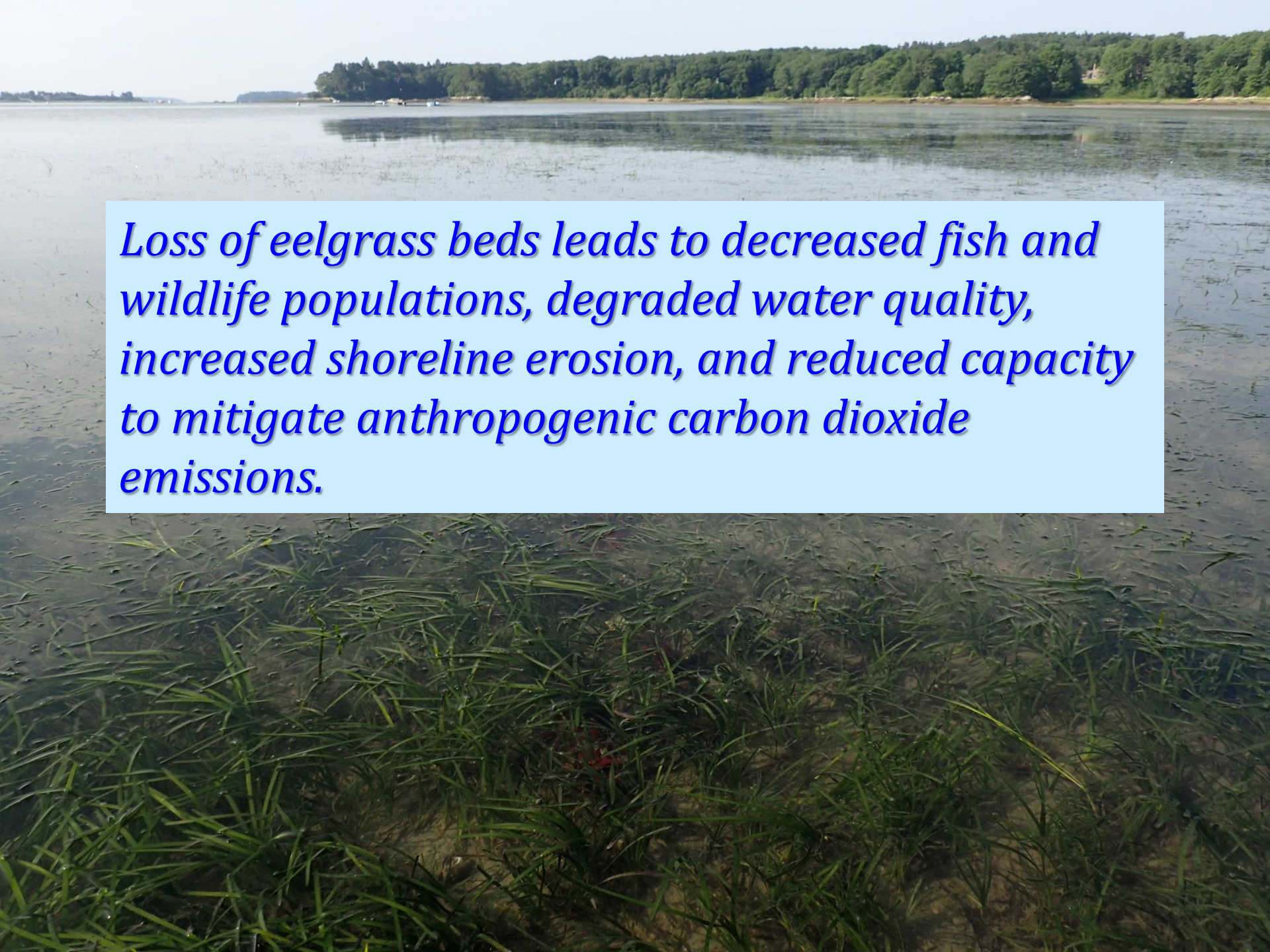


Hilary Neckles

*Photosynthetic uptake of CO_2 elevates pH
and eelgrass sediments are a natural carbon sink*



Hilary Neckles



Loss of eelgrass beds leads to decreased fish and wildlife populations, degraded water quality, increased shoreline erosion, and reduced capacity to mitigate anthropogenic carbon dioxide emissions.



Eelgrass Habitat in Casco Bay:



Past

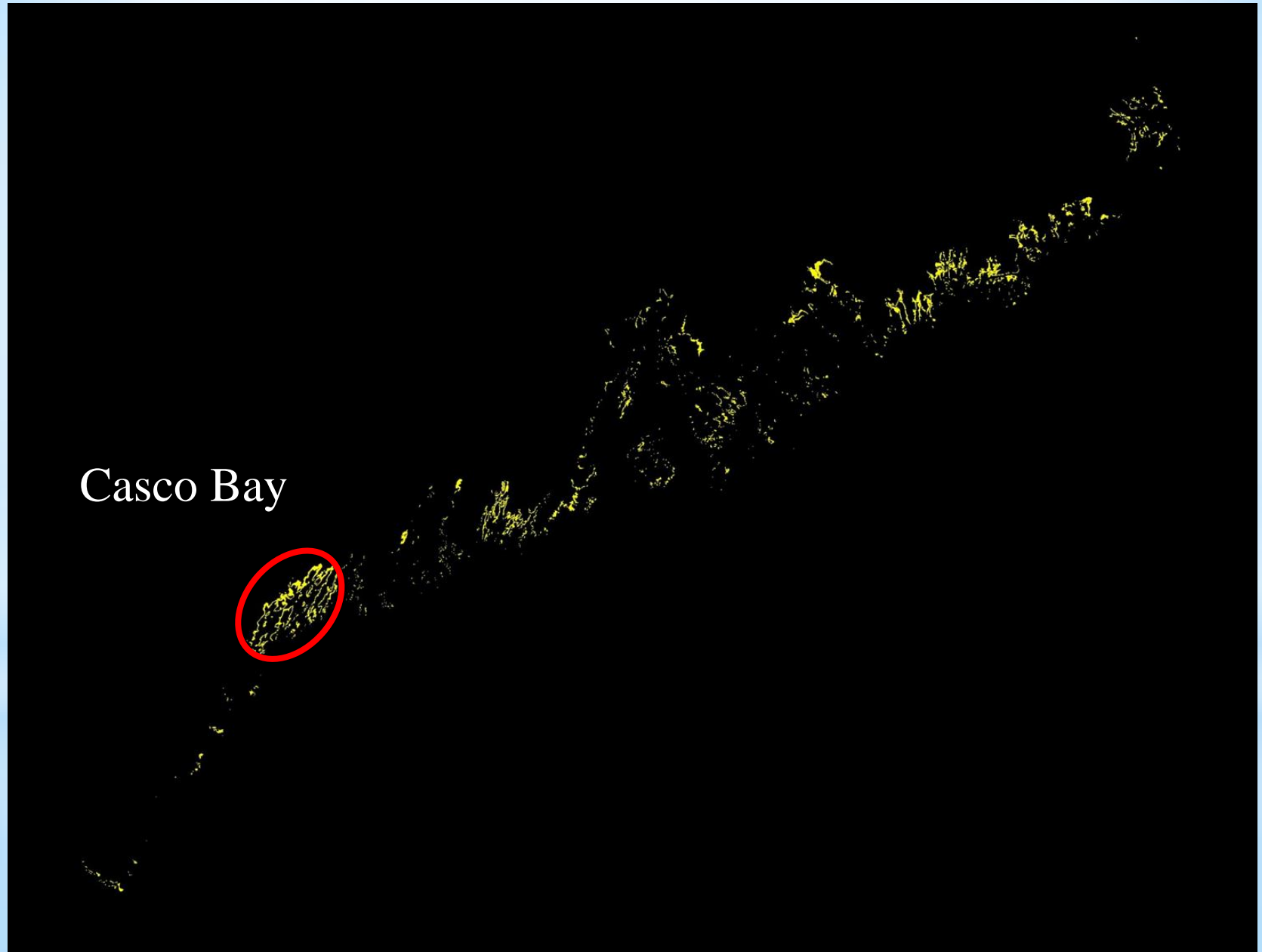


Present

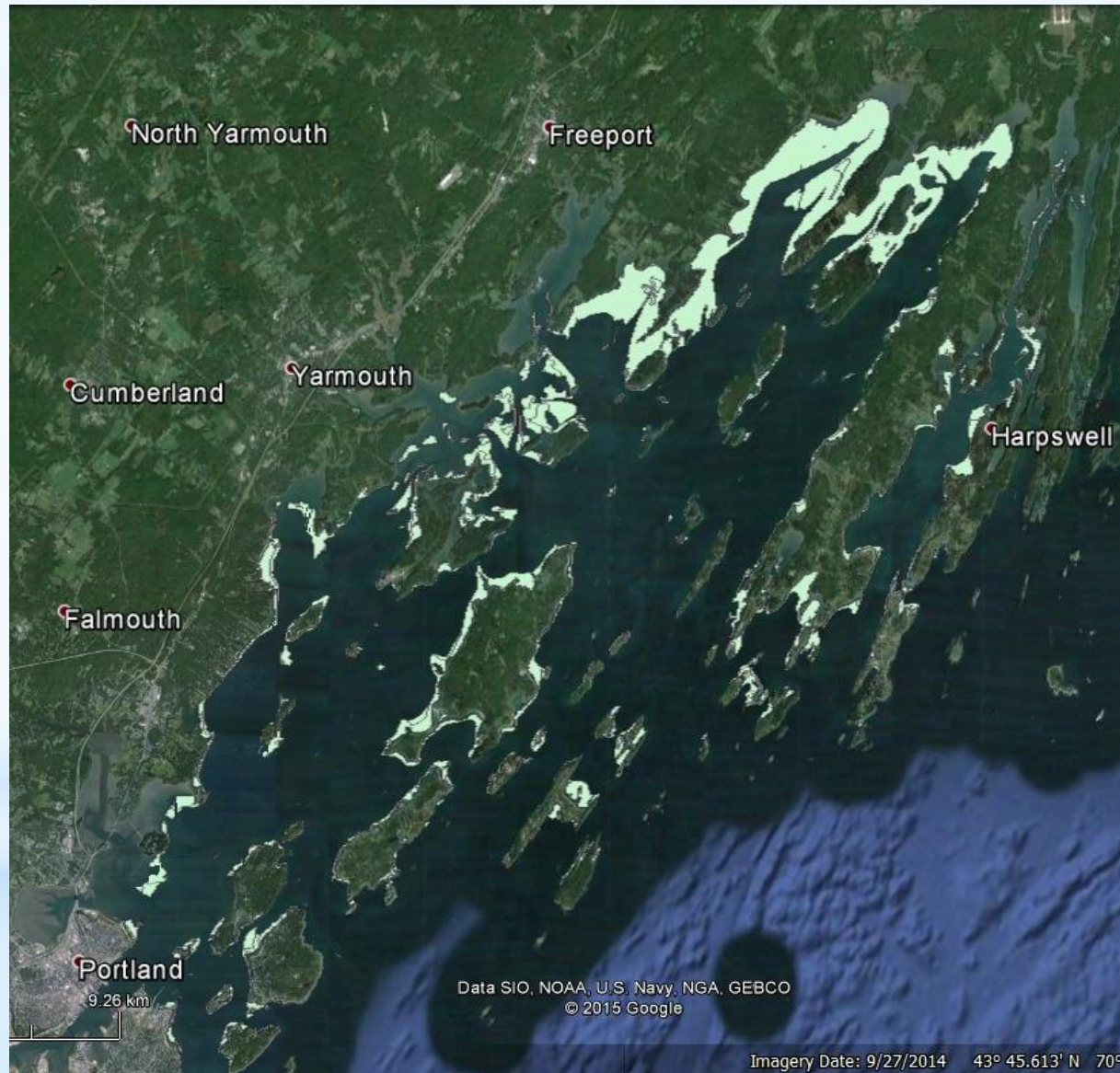


Future?

Maine Eelgrass Distribution 1992 - 1998



Casco Bay Eelgrass Distribution 2001/02



Data source: Maine Department of Marine Resources, Bureau of Resource Management



Eelgrass Habitat in Casco Bay:



Past



Present



Future?

Intertidal Flats at Head of Maquoit Bay

2001



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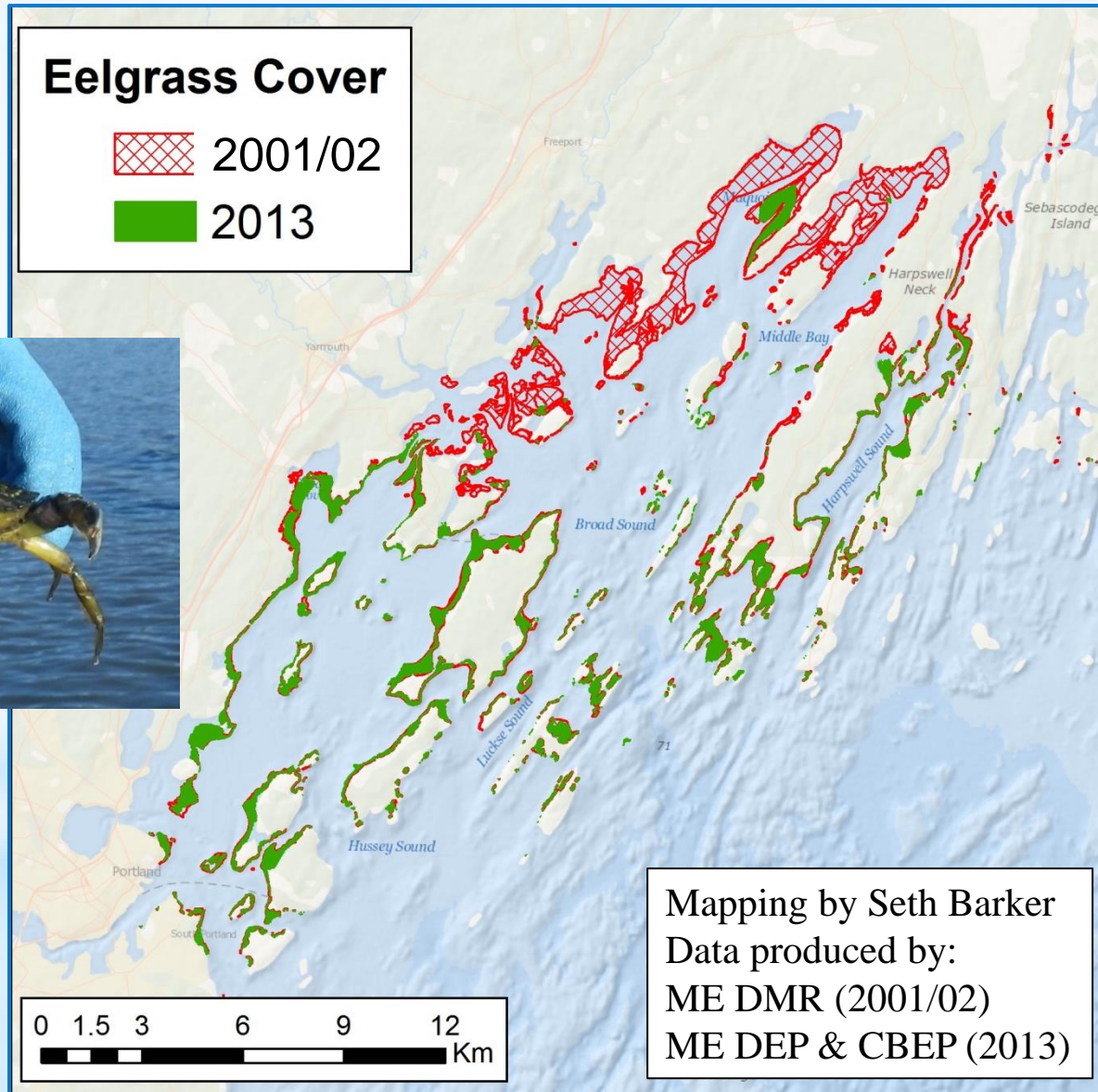
Intertidal Flats at Head of Maquoit Bay

2013



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Eelgrass Change in Casco Bay





Eelgrass Habitat in Casco Bay:

- Past
- Present
- **Future?**

An underwater photograph showing several tall, green eelgrass blades growing from a sandy seabed. The water is clear, and the lighting is bright, highlighting the texture of the grass and the sand.

Casco Bay Eelgrass Partners

Federal

US Geological Survey

USFWS Gulf of Maine Program

State

Maine Dept. of Environ. Protection

Maine Coastal Program

Municipal

Town of Brunswick Marine Resources Division

Conservation Organizations

Casco Bay Estuary Partnership

Friends of Casco Bay

Maine Nature Conservancy

Academic and Research Entities

Bowdoin College

University of New Hampshire

Resource Access International

Independent seagrass mapping experts

MDI Biological Laboratory

Bigelow Laboratory for Ocean Sciences

Southern Maine Community College

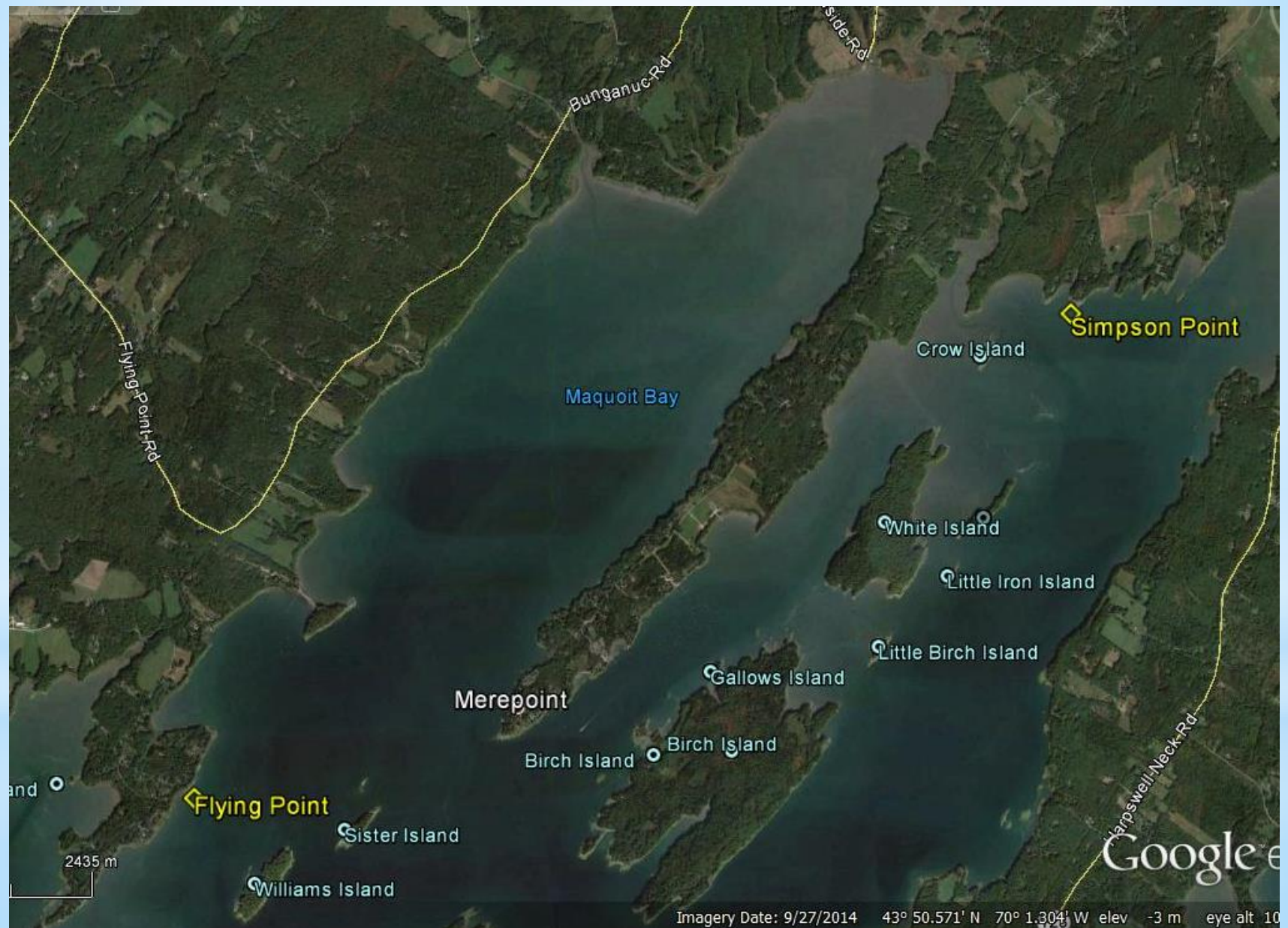
Concerned citizens

Flying Point shoreline residents

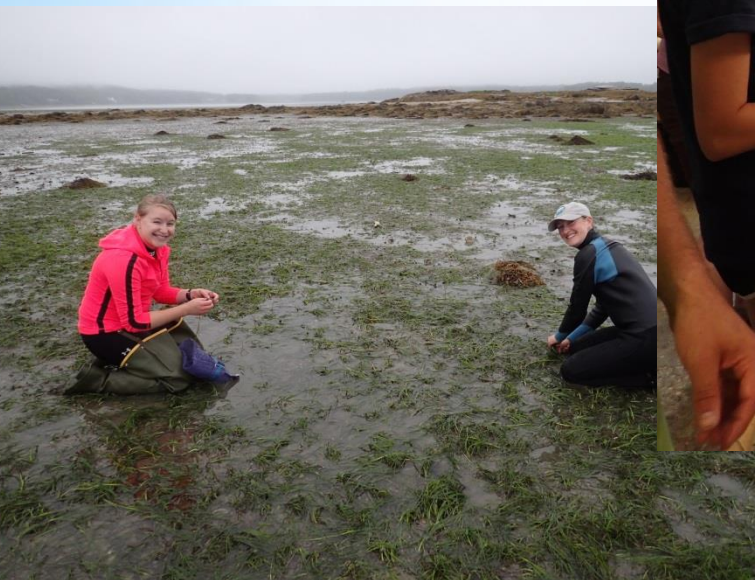
Questions

- Has Upper Casco Bay exceeded system thresholds for eelgrass?
- Are there sites amenable to restoration?
- What restoration methods are most successful?

Test Sites 2015



Test Transplants June/early July



August 2015

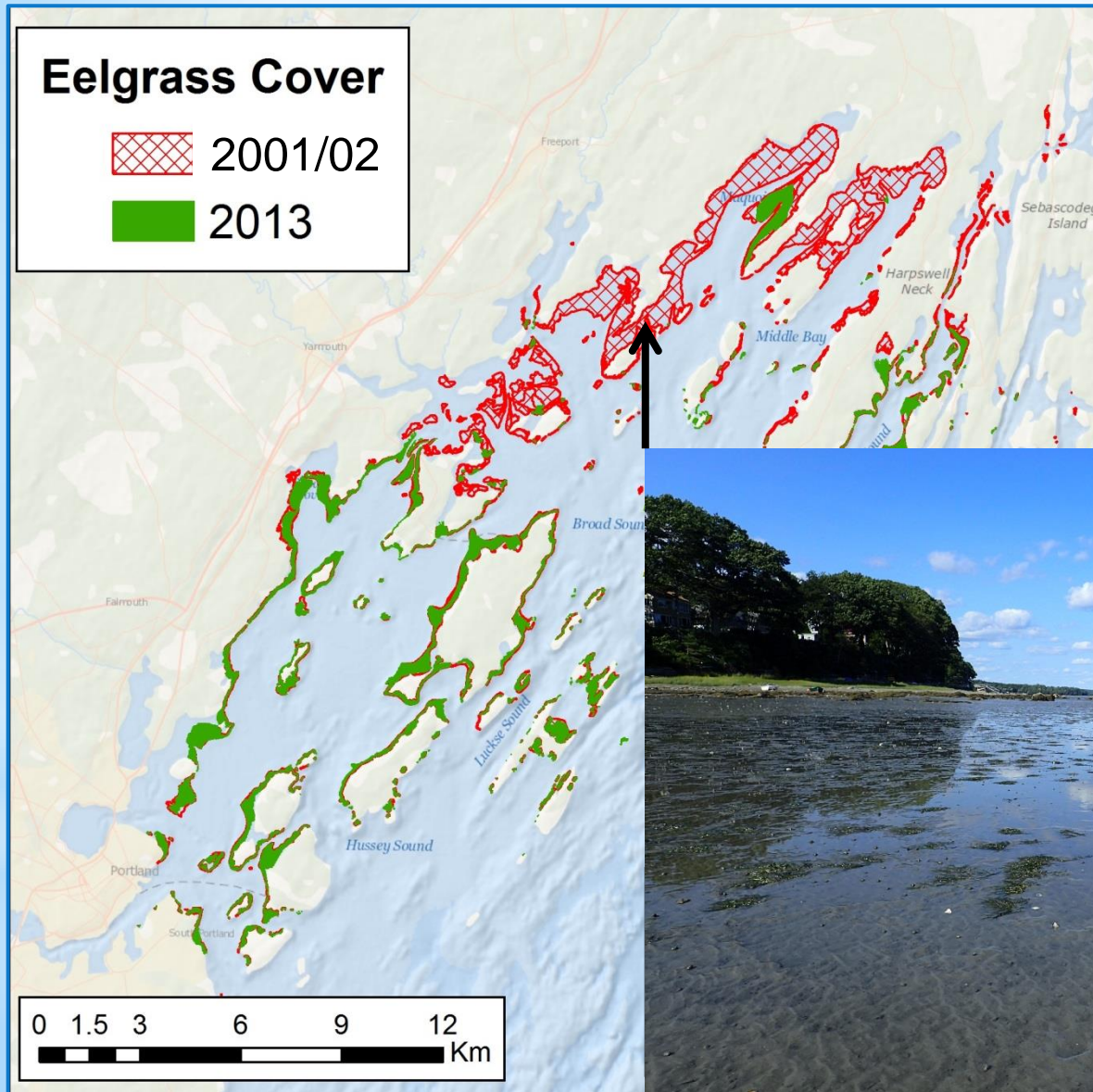
Flying Point,
Freeport



Simpson Point,
Brunswick



Natural Recovery is Beginning



How resilient is
my habitat?

